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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,042	07/11/2003	Yoshihiro Ishida	03560.003336.	3064
5514 7590 06/13/2008 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112				
EXAMINER				
YUAN, KATHLEEN S				
ART UNIT		PAPER NUMBER		
2624				
MAIL DATE		DELIVERY MODE		
06/13/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,042

Applicant(s)

ISHIDA, YOSHIHIRO

Examiner

KATHLEEN S. YUAN

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The response received on 4/14/2008 has been placed in the file and was considered by the examiner. An action on the merit follows.

Response to Amendment

1. The amendments filed on 14 April 2008 have been fully considered. Response to these amendments is provided below.

Summary of Arguments/Amendments:

1. The applicant has amended the independent claims, as made of record. The applicant further summarizes previous prior art and states that the prior art does not teach the amended claims, more specifically, that the present invention does not require the multi-view face detection because an angle which a camera is rotated can be attached to an image.
2. The examiner disagrees. The angle of the camera is used in Silverbrook to update the image to an upright orientation for facial image processing. Li et al uses this upright picture to process the images from 90 degrees to -90 degrees, thus taking into account 180 degrees. Therefore, together, Silverbrook and Li et al teach the present invention, as claimed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification was searched for "the determination means for determining whether or not the image is photographed...information input means," and this limitation cannot be found. Therefore, the claimed limitation is deemed to fail the written description requirement and is considered new matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5, 6, 9, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6597817 (Silverbrook) in view of U.S. Patent No. 7050607 (Li et al).

7. Regarding claim 1, Silverbrook discloses an image processing apparatus comprising (fig. 2): image input means for inputting an image, an area sensor (col. 3, lines 33-34); photographing-position information input means for inputting photographing-position information of a camera that photographs the image, that which inputs the orientation angle/ photographing-position from the orientation sensor (col. 3, lines 30-32), the photographing-position information being attached to the image input by the image input since the orientation angle correlates to the image input (fig. 2), determination means for determining whether or not the image is photographed with the camera being rotated in a predetermined direction, either landscape or portrait, with reference to the photographing-position information input by the photographing-position information input means (fig. 2, item 7), and after experiencing an image input and sensing the orientation, and thus finding the right side up, using face detection algorithms on the image in the correct orientation (col. 3, lines 46-52).

Silverbrook does not disclose expressly any specific face detection algorithms, such as the claimed face-detection angle-range information determination means for determining an angle range used in a process of detecting a face from the input image (which would be on the basis of the an angle at which the camera is rotated, since the processing is done with the image in the correct orientation, and done when the determination means determines that the image is photographed with the camera being rotated in the predetermined direction, since Silverbrook carries out face detection algorithms when the correct orientation is determined, as explained above); and process control means having a mode to control the execution of the face detecting

process on the basis of information indicating the angle range determined by the face-detection angle-range information determination means. .

Li et al discloses face detection angle-range information determination means, a detector pyramid (col. 6, lines 20-22) for determining an angle range used in a process of detecting a face from an input image (col. 6, lines 17-32), on the basis of a correctly orientated image (fig 8), which Silverbrook carries out, as explained above, and even going to another step of limiting the right-side up image in sub-windows (col. 6, lines 39-41). Li et al further discloses process control means (fig. 6, fig. 3), having a mode to control the execution of the face detecting process on the basis of information indicating the angle range determined by the face-detection angle-range information determination means (col. 6, lines 22-57), since the layered system has many layers or modes to control the face detection on the basis of the indicated angle range of the layer.

Silverbrook and Li et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an angle range to detect a face.

The suggestion/motivation for doing so would have been to provide a more thorough, more accurate recognition by considering all possible angle ranges a face could be in.

Therefore, it would have been obvious to combine the orientation apparatus of Silverbrook with the range of angles of Li et al to obtain the invention as specified in claim 1.

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8. Regarding claim 2, Li et al discloses that the process control means controls the execution of the face detecting process in predetermined angle increments, the predetermined angle increments being those of the different layers (col. 6, lines 25-32).

9. Claim 5 is rejected for the same reasons as claim 1. Thus, the arguments analogous to that presented above for claim 1 are equally applicable to claim 5. Claim 5 distinguishes from claim 1 only in that claim 5 is an image processing method, and claim 1 is an apparatus. Since an apparatus carries out a method, prior art applies.

10. Claim 6 is rejected for the same reasons as claim 2. Thus, the arguments analogous to that presented above for claim 2 are equally applicable to claim 6. Claim 6 distinguishes from claim 2 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

11. Claims 9, 10 and 11 are rejected for the same reasons as claim 1. Thus, the arguments analogous to that presented above for claim 1 are equally applicable to claims 9, 10 and 11. Claims 9, 10 and 11 distinguish from claim 1 only in that claims 9, 10 and 11 are program and storage medium claims and claim 1 is an apparatus claim. Since all limitations are addressed in claim 1, prior art applies.

2. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook in view of Li et al, as applied to claims 1 and 5 above, and further in view of U.S. Patent Application Publication No 20010019620 (Nagai et al).

Regarding claim 3, Silverbrook (as modified by Li et al) discloses all of the claimed elements as set forth above and incorporated herein by reference.

Silverbrook (as modified by Li et al) does not disclose expressly image rotation means for rotating an input image, wherein the process control means allows the image rotation means to rotate the input image in order to form images in predetermined angle increments, and performs the face detecting process to the respective images.

Nagai et al discloses image rotation means (fig. 4) for rotating an image, since an image is rotated around an axis by taking more images at a different rotation angle (fig. 4, item 108 and 109), wherein the process control means allows the image rotation means to rotate the input image in order to form images in predetermined angle increments, the angle increments being the predetermined distance (page 4, paragraph 0059) around the subject and thus a predetermined angle (fig. 2), and performs a face detecting process to the respective images by detecting skin color ratio and thus the face detecting (fig. 4, step 104). It is noted Nagai has a different way of detecting the face as Li et al does, but they are both face detection processes and thus both applicable to each other.

Silverbrook (as modified by Li et al) and Nagai et al are combinable because they are from the same field of endeavor, i.e. face detection.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to form images around the input image.

The suggestion/motivation for doing so would have been to provide a more robust system, and a more widely applicable system by allowing the system to obtain an optimal image.

Therefore, it would have been obvious to combine the apparatus of Silverbrook (as modified by Li et al) with the multiple images of Nagai et al to obtain the invention as specified in claim 3.

3. Claim 7 is rejected for the same reasons as claim 3. Thus, the arguments analogous to that presented above for claim 3 are equally applicable to claim 7. Claim 7 distinguishes from claim 3 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

12. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook in view of Li et al, as applied to claims 1 and 5 above, and further in view of U.S. Patent No. 6345110 (Niyogi et al).

13. Regarding claim 4, Silverbrook (as modified by Li et al) discloses all of the claimed elements as set forth above and incorporated herein by reference. Li et al further discloses reference data conversion means, that which captures images for training data in fig. 3, step 302 and continues to convert training data in step 304, for converting face detection reference data by cropping and normalizing, used for face detection into reference data for an angled face, since the data is used to train a pyramid for the classifiers which is used in the face detection (fig. 3, step 306), wherein the process control means allows the reference data conversion means to convert the face detection reference data into reference data for an angled face in order to form angled-face reference data in predetermined angle increments, the angle increments being the predetermined angle ranges shown in fig. 4, and the angled-face reference

data being the data that is used to train the pyramid in fig. 3 step 306, and executes the face detecting process to the input image using the formed angled-face reference data, since the reference data is used to train the pyramid (fig. 4).

Silverbrook (as modified by Li et al) does not disclose expressly that the angled face is a tilted face.

Niyogi et al discloses that a way in which the face can be processed and saved into a memory for training/ reference is at a tilt angle (fig. 2).

Silverbrook (as modified by Li et al) and Niyogi et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to consider tilted angles in the processing.

The suggestion/motivation for doing so would have been a more robust, accurate and detailed system by providing the most information on the face as possible.

Therefore, it would have been obvious to combine the apparatus of Silverbrook (as modified by Li et al) with the tilting of Niyogi et al to obtain the invention as specified in claim 4.

14. Claim 8 is rejected for the same reasons as claim 4. Thus, the arguments analogous to that presented above for claim 4 are equally applicable to claim 8. Claim 8 distinguish from claim 4 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHLEEN S. YUAN whose telephone number is (571)272-2902. The examiner can normally be reached on Monday to Thursdays, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bhavesh M Mehta/
Supervisory Patent Examiner, Art Unit 2624

KY
5/28/2008